

Request for Special Temporary Authority

Pursuant to Section 25.120 of the Rules and Regulations of the Federal Communications Commission (the “Rules”), 47 C.F.R. § 25.120, Harris CapRock Communications, Inc. (“Harris CapRock”) respectfully requests special temporary authority (“STA”) to operate certain earth station onboard vessel (“ESV”) terminals – Harris CapRock’s new SpaceTrack Model ST5000-2.4 and the Intellian Model v240M – in the C- and Ku-band for sea trial testing and demonstrations onboard two foreign-registered cruise ships, the Carnival Sunshine and the Carnival Victory, currently based in Port Canaveral, Florida and Miami, Florida, respectively. Harris CapRock respectfully requests an STA to commence operations on August 14, 2015 to test terminal transmissions in the 5.925-6.425 GHz band and the 14.0-14.5 GHz band. The requested authority enhances current experimental STAs granted to Harris CapRock to test the ST5000-2.4 at specific inland locations¹ by enabling its testing in real-world maritime conditions in comparison to the v240M terminal. The requested STA will also support Harris CapRock’s pending 60-day STA application currently being review by the Commission for identical testing operations.²

Discussion. Harris CapRock seeks an STA for a period of up to 180 days, commencing on Friday, August 14, 2015 to test terminal uplink transmissions in the conventional C-band (*i.e.*, 5.925-6.425 GHz) and Ku-band (*i.e.*, 14.0-14.5 GHz band). The terminals will receive in conventional C-band and Ku-band downlink spectrum (*i.e.*, 3.700-4.200 GHz and 11.7-12.2 GHz, respectively). Harris CapRock is developing and testing new ESV terminals to communicate with geostationary satellite orbit (“GSO”) and non-geostationary satellite orbit (“NGSO”) fixed-satellite service (“FSS”) satellites in the maritime context. The requested STA is for communication with certain C-band and Ku-band GSO FSS satellite only.

Harris CapRock was recently granted consolidated authority to test the ST5000-

¹ See File No. 0734-EX-ST-2015; *see also* File No. 0454-EX-ST-2015.

² See File No. SES-MS-20150728-00474.

2.4 terminal in the C-, Ku- and Ka-band at specific fixed inland locations.³ Furthermore, the Commission has previously authorized the v240M terminal for commercial maritime use⁴ and Harris CapRock certifies that it will operate the terminal on an intermittent basis within the parameters of that approval. Finally, as noted, Harris CapRock has a pending 60-day STA request for identical ESV testing operations and certifies that there have been no changes in this application.⁵ Grant of the requested authority will allow Harris CapRock to further develop and demonstrate the commercial viability of its ST5000-2.4 by comparing it to the v240M model in real-world maritime conditions and ensure that Harris CapRock's authority will be valid past 60 days. Exhibit A contains relevant information relating to the earth station technical parameters, antenna performance, link budgets, radiation hazard and general antenna specifications for the ST5000-2.4. Exhibit B contains the above-mentioned relevant antenna information for the v240M.

Grant of the requested authority will serve the public interest by allowing Harris CapRock to continue development of this new line of antennas that would greatly benefit government and commercial maritime customers. Moreover, Harris CapRock certifies that the proposed experimental operations will be conducted on an unprotected non-interference basis and will comply with Sections 25.221 and 25.222 of the Commission's Rules.⁶ Finally, the International Bureau has previously granted authority for operations of ESVs on foreign-flagged vessels for commercial purposes,⁷ and Harris CapRock's proposed testing operations will be much more limited in scope and duration.

Sea Trials. Harris CapRock seeks to test the new ESV terminals in the C- and Ku-band on two different cruise ships. The ST5000-2.4 will be tested on the Carnival Sunshine, which will be ported in Port Canaveral, Florida. During testing, the Sunshine will serve routes in the Caribbean around Puerto Rico and the U.S. Virgin Islands, but

³ See File No. 0734-EX-ST-2015.

⁴ See File No. SES-MOD-20131108-00955 (Call Sign: KA313).

⁵ See File No. SES-MSC-20150728-00474.

⁶ See Attachment 1.

⁷ See File No. SES-MSC-20150206-00066; see File No. SES-MSC-20140318-00150.

will only sail to and dock in foreign territories. (*See* Exhibit C for Carnival Sunshine Port List).

The ST5000-2.4 terminals will be added to the vessels satellite communications suite for purposes of test performance in C- and Ku-band frequencies in real-world conditions. Harris CapRock will test the terminals in Ku-band with the U.S.-licensed Telstar 11N satellite and in the C-band with the U.S.-licensed IS-701 and IS-23 satellites. The ST-5000 2.4m terminal has been previously authorized to communicate with the first two satellites,⁸ and will communicate with IS-23 in accordance with the authorized parameters of this FCC-licensed satellite.

The v240M terminal will be tested in the C-band and Ku-band on the Carnival Victory, which will be ported in Miami, Florida. During testing, the Victory will serve routes in the Caribbean but will only sail to and dock in foreign territories. (*See* Exhibit D for Carnival Victory Port List). The v240M terminals will be added to the vessel's satellite communications suite for purposes of test performance in C-band and Ku-band frequencies in real-world conditions. Harris CapRock will test the terminals in the C- and Ku-band with the U.S.-licensed IS-701 satellite.⁹ Harris CapRock certifies that the v240M terminal will communicate with IS-701 in accordance with the authorized parameters of that FCC-licensed satellite.

Harris CapRock has completed coordination of C-band frequencies at Port Canaveral, Florida (*see* Exhibit A, Annex 4) and Miami, Florida (*see* Exhibit B, Annex 4) and is in the process of coordinating relevant routes and frequencies that could potentially affect U.S.-licensed fixed service operations. As further discussed in Attachment 1, Harris CapRock will ensure that its proposed operations will avoid interference to other co-frequency systems and services, and will otherwise comply with Commission policies embodied in its C-band and Ku-band ESV rules.¹⁰

⁸ *See* File No. 0734-EX-ST-2015.

⁹ Harris CapRock was recently granted authority to communicate with the IS-701 satellite from certain South Florida locations for testing and demonstration purposes. (*See* File No. 0734-EX-ST-2015).

¹⁰ *See, e.g.*, 47 C.F.R. §25.221-222.

Harris CapRock's coordination efforts will ensure that no interference will be caused by intermittent C-band test operations and the absence of co-frequency operations in relevant Ku-band frequencies will prevent interference from experimental operations of the ST5000-2.4 and v240M terminals in those bands. While Harris CapRock's commercial C-band and Ku-band ESV licenses impose operational restrictions to protect other co-frequency operations, it cannot yet add the ST5000-2.4 to these licenses because the terminal is still in development. However, as further discussed below, Harris CapRock plans to file a request for regular authority for the service.

In both bands, Harris CapRock agrees to accept all interference from other authorized spectrum users and will immediately suspend operations in the event of interference to other systems and services. In addition, Harris CapRock acknowledges and accepts the conditions of operation set forth in its prior C-band ESV experimental authority¹¹ and similar Ku-band ESV authority.¹²

Expedited Consideration under Section 25.120. Harris CapRock respectfully requests expedited processing of this STA request under Section 25.120. Section 25.120(a) provides that STA requests should be filed at least three working days prior to the date of commencement of the proposed operations. Here, Harris CapRock is proposing to commence testing operations on Friday, August 14th.

As noted, Harris CapRock currently has an experimental STA request with the International Bureau for the subject test operations for a 60-day period. Harris CapRock has been in regular consultation with FCC staff regarding filing a longer term STA with the International Bureau to supplement its 60-day STA and allow the Commission the opportunity to place the application on public notice. Given the unique circumstances of the present situation, expedited processing of this STA request is warranted and will allow Harris CapRock to ensure that its testing beyond the 60-day period will be properly authorized by the Commission.

Section 25.120(b)(2) provides that the Commission may grant a temporary authorization for a period not to exceed 180 days if it has placed the STA on public

¹¹ See File No. 0363-EX-ST-2011.

¹² See File No. SES-MFS-20120801-00710 (Call Sign E100015).

notice. Given Harris CapRock's existing 60-day STA request pursuant to Section 25.120(b)(3), the Commission should have sufficient time to place this application on public notice.

Harris CapRock has expended considerable effort in preparing equipment and personnel for testing on the subject cruise ships to ensure the commencement of operations on August 14th. Grant of the requested authority will serve the public interest by allowing continued development of a new line of ESV terminals that could greatly benefit government and commercial customers and accelerate the expansion of maritime satellite communications services. In addition, authorizing near-term development of this terminal will ensure that Harris CapRock (a U.S. equipment manufacturer and service provider) and other U.S. interests can participate more fully in the development of these important new services. Accordingly, Harris CapRock respectfully submits that the public interest will be served by grant of the requested STA commencing August 14th.

Point of Contact and Other Information. The Harris CapRock point of contact with the authority to suspend immediately the proposed ESV terminal operations is:

Mike Horn
Harris CapRock Communications
1025 West NASA Blvd.
Melbourne, FL USA 32919
Phone: 321-724-3384
Mobile: 321-258-4414
Text: [3212584414@text.att.net](tel:3212584414)
E-mail: mhorn01@harris.com

The secondary point of contact for the proposed experimental operations is:

Harris CapRock Network Control Center
Managed Network Services 24x7 support
4400 S. Sam Houston Pkwy, E.
Houston, Texas 77046
Office: (832) 668-2775
Fax: (713) 987-2894
Email Address: hcc-hou-csc@harris.com

The following annexes contain additional technical information relating to the proposed experimental operations:

- Exhibit A: ST5000-2.4 Description and Technical Characteristics

- Annex 1 – Antenna Performance Plots (demonstrating compliance with the off-axis EIRP spectral density mask, including co-pol and cross-pol);
- Annex 2 – Link Budgets (various forward and return link budgets for the ST5000-2.4 terminal);
- Annex 3 – Radiation Hazard Studies (establishing near-field and far-field region distances). Harris CapRock will follow standard industry procedures to mitigate potential radiation hazards to personnel in controlled environments. (The terminals do not transmit in uncontrolled areas at Harris CapRock test facilities); and
- Annex 4 – C-band Coordination Report, Port Canaveral, Florida.
- Exhibit B: v240M Description and Technical Characteristics
 - Annex 1 – Antenna Performance Plots (demonstrating compliance with the off-axis EIRP spectral density mask, including co-pol and cross-pol);
 - Annex 2 – Declaration of Conformity;
 - Annex 3 – Radiation Hazard Study for C-band operations¹³ (Harris CapRock will follow standard industry procedures to mitigate potential radiation hazards to personnel in controlled environments. (The terminals do not transmit in uncontrolled areas at Harris CapRock test facilities); and
 - Annex 4 – C-band Coordination Report, Miami, Florida.

Conclusion. The requested STA will allow Harris CapRock to continue development of its new ST5000-2.4 terminal to communicate with C- and Ku-band satellites, and will not result in harmful interference to or require protection from other authorized spectrum users. Therefore, the proposed operations are consistent with Commission’s rules and policies and with the public interest. Harris CapRock respectfully requests that the experimental STA be granted for 180 days commencing on August 14, 2015.

Attachment 1

§ 25.221

¹³ Harris CapRock certifies that its operations at Ku-band are similar to Commission-licensed antennas of the same size and that it will employ established mitigation techniques to ensure that the RF levels remain well within the parameters established in the Commission’s Rules.

As part of its application for experimental special temporary authority (“STA”) to operate certain earth station onboard vessel (“ESV”) terminals –SpaceTrack Model ST5000-2.4 and Intellian Model v240M – in the C- and Ku-band for sea trials onboard foreign-flagged ships, Harris CapRock certifies in the following section and associated appendices that when the terminals are operating in the C-band on either vessel, they will comply with the relevant requirements of Section 25.221 of the Commission’s Rules, 47 C.F.R. § 25.221:

(a)(1): Comply. (See Exhibit A, Annex 1 & Exhibit B, Annex 1).

(a)(2): Not applicable.

(a)(3): Not applicable.

(a)(4): Comply. Mike Horn, located at 1025 West NASA Blvd., Melbourne, FL USA 32919 is the U.S. point of contact that has the authority and ability to cease all emissions for each ESV and is available 24 hours a day, seven days a week at phone number: (321)-724-3384, mobile: 321-258-441, text: [3212584414@text.att.net](tel:3212584414) and email: mhorn01@harris.com.

(a)(5): Comply. These records will be collected and maintained as specified and made available within 24 hours of a request.

(a)(6): Comply. Harris CapRock will be testing the terminals on the Carnival Sunshine (Bahamian-registered) and the Carnival Victory (Panamanian-registered). The point of contact for the Bahamian licensing administration responsible for licensing ESVs is: Bahamas Maritime Authority, Shirlaw House, 226 Shirley Street, PO Box N-4679, Nassau, Bahamas. Contact at phone number +1 242 356 5772 or email reg@bahamasmaritime.com. The point of contact for the Panamanian licensing administration responsible for licensing ESVs is: Panama Maritime Authority, Pan Canal Plaza Building (Albrook), Omar Torrijos Herrera Avenue, Albrook, Ancon Borough,

Panama. Contact at phone (507) 501-5031 and email rgaribaldi@amp.gob.pa.

(a)(7): Comply. Harris CapRock will control the ESVs by a hub earth station located in Hagerstown, MD, USA. The point of contact within the U.S. with the capability and authority to cease ESV transmissions is Mike Horn, located at 1025 West NASA Blvd., Melbourne, FL USA 32919 is the U.S. point of contact that will control all ESVs and is available 24 hours a day, seven days a week at phone number: (321)-724-3384, mobile: 321-258-441, text: 3212584414@text.att.net and e-mail: mhorn01@harris.com.

(a)(8): Comply.

(a)(9): Comply.

(a)(10): Comply.

(a)(11): Comply.

(a)(12): Comply. Harris CapRock will not commence test operations within 200 km from the baseline of the United States, or within 200 km from a U.S.-licensed fixed service offshore installation, without coordinating with potentially affected U.S.-licensed fixed service operators prior to operation.

(a)(13): Comply.

(b)(1): Comply.

(b)(2): Not Applicable.

(b)(3): Not Applicable.

(b)(4): Comply. See Exhibits C & D.

(b)(5): See Above. Comply. Mike Horn, located at 1025 West NASA Blvd., Melbourne, FL USA 32919 is the U.S. point of contact that has the authority and ability to cease all emissions for each ESV and is available 24 hours a day, seven days a week at phone number: (321)-724-3384, mobile: 321-258-441, text: 3212584414@text.att.net and e-mail: mhorn01@harris.com.

(b)(6): See Exhibit A, Annex 3 & Exhibit B, Annex 3 (Radiation Hazard Reports).

§ 25.222

As part of its application for experimental special temporary authority (“STA”) to operate certain earth station onboard vessel (“ESV”) terminals –SpaceTrack Model ST5000-2.4 and Intellian Model v240M – in the C- and Ku-band for sea trials onboard foreign-flagged ships, Harris CapRock certifies in the following section and associated appendices that when the terminals are operating in the Ku-band, they will comply with the relevant requirements of Section 25.222 of the Commission’s Rules, 47 C.F.R. § 25.222.

(a)(1): Comply. (See Exhibit A, Annex 1 & Exhibit B, Annex 1).

(a)(2): Not applicable.

(a)(3): Not applicable.

(a)(4): Comply. Mike Horn, located at 1025 West NASA Blvd., Melbourne, FL USA 32919 is the U.S. point of contact that has the authority and ability to cease all emissions for each ESV and is available 24 hours a day, seven days a week at phone number: (321)-724-3384, mobile: 321-258-441, text: 3212584414@text.att.net and email: mhorn01@harris.com.

(a)(5): Comply. These records will be collected and maintained as specified and made available within 24 hours of a request.

(a)(6): Comply. Harris CapRock will be testing the terminals on the Carnival Sunshine (Bahamian-registered) and the Carnival Victory (Panamanian-registered). The point of contact for the Bahamian licensing administration responsible for licensing ESVs is: Bahamas Maritime Authority, Shirlaw House, 226 Shirley Street, PO Box N-4679, Nassau, Bahamas. Contact at phone number +1 242 356 5772 or email reg@bahamasmaritime.com. The point of contact for the Panamanian licensing administration responsible for licensing ESVs is: Panama Maritime Authority, Pan Canal Plaza Building (Albrook), Omar Torrijos Herrera Avenue, Albrook, Ancon Borough, Panama. Contact at phone (507) 501-5031 and email rgaribaldi@amp.gob.pa.

(a)(7): Comply. Harris CapRock will control the ESVs by a hub earth station located in Hagerstown, MD, USA. The point of contact within the U.S. with the capability and authority to cease ESV transmissions is Mike Horn, located at 1025 West NASA Blvd., Melbourne, FL USA 32919 is the U.S. point of contact that will control all ESVs and is available 24 hours a day, seven days a week at phone number: (321)-724-3384, mobile: 321-258-441, text: 3212584414@text.att.net and e-mail: mhorn01@harris.com.

(a)(8): Comply.

(b)(1): Comply.

(b)(2): Not Applicable.

(b)(3): Not Applicable.

(b)(4): Comply. See Exhibits C & D.

(b)(5) Comply. See Above.

(b)(6): Comply. (See Exhibit A, Annex 3 & Exhibit B, Annex 3).

(c): Harris CapRock certifies that its proposed test operations will not be conducted in the 14.0-14.2 GHz band within: 125 km of the NASA TDRSS facilities on Guam (located at latitude: 13°36'55" N, longitude 144°51'22" E) or White Sands, New Mexico (latitude: 32°20'59" N, longitude 106°36'31" W and latitude: 32°32'40" N, longitude 106°36'48" W). Accordingly, coordination with NTIA and IRAC is not required.

(d): Harris CapRock certifies that its proposed test operations will not be conducted in the 14.47-14.5 GHz band within: (a) 45 km of the radio observatory on St. Croix, Virgin Islands (latitude 17°46' N, longitude 64°35' W); (b) 125 km of the radio observatory on Mauna Kea, Hawaii (at latitude 19°48' N, longitude 155°28' W); and (c) 90 km of the Arecibo Observatory on Puerto Rico (latitude 18°20'46" W, longitude 66°45'11" N). Accordingly, coordination with NTIA and IRAC is not required.